

The eruptive activity of 28 and 29 December 2002

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Abstract. At 18:20 of 28 December 2002 an eruptive vent opened on the NE flank of the Sciara del Fuoco at 600 m asl, marking the onset of the 2002-2003 eruptive crisis of Stromboli volcano. The first eruptive hours were characterized by mild spattering and effusive activity from the new vent and the summit vent at crater 1. Gravitational instability processes also determined the partial collapse of NE walls of the summit cone (crater 1). Pyroclastic material partly accumulated on the NE part of the Sciara, and partly flowed down slope and reached the sea at Spiaggia dei Gabbiani forming a ~ 4m-thick, reddish avalanche, that was soon covered by a lava flow emitted in the following hours (Lodato et al., 2007). In this paper, we describe the first hours of activity through eyewitnesses' reports, geophysical monitoring, field and laboratory studies and of the erupted pyroclastic material and lava flows. Daily temperature measurements were carried out on the avalanche deposit formed by the flow of scoria along the Sciara, using a handheld thermal camera mainly during helicopter surveys. A fast cooling rate was typical of the deposit surface, and a slow cooling rate was representative of its inner portion.